



**BRITISH COLUMBIA
MINISTRY OF FORESTS**

Tree Farm Licence 43

Issued to Scott Paper Limited

**Rationale for
Allowable Annual Cut (AAC)
Determination**

Effective March 1, 2000

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Table of Contents

Objective of this document	1
Description of the tree farm licence	1
History of the AAC	2
New AAC determination	3
Information sources used in the AAC determination	3
Statutory framework	4
Guiding principles for AAC determinations	4
Role and limitations of the technical information used	7
Timber supply analysis	7
Consideration of factors as required by section 8 of the <i>Forest Act</i>	10
Land base contributing to timber harvest	10
- general comments	10
- new parks	11
- non-forest	11
- physical and economic operability	11
- non-commercial cover	11
- low productivity areas	12
- environmentally sensitive areas	12
- other sensitive sites – erosion and accretion	12
- problem forest types	12
- estimates for roads, trails and landings	12
Existing forest cover inventory	13
- current forest inventory	13
- age-class distribution	14
- species profile	14
Expected rate of growth	14
- site productivity estimates	14
- volume estimates for existing stands	15
- volume estimates for regenerated stands	16
- minimum harvestable age	16
Harvesting profile	17
Regeneration delay	17
Not-satisfactorily-restocked areas	18
Impediments to prompt regeneration	18
Silvicultural systems	18
Incremental silviculture	18
- juvenile spacing, pruning and fertilization	19
- genetic gain	19
Utilization standards	19
Decay, waste and breakage	19

Integrated resource management (IRM) objectives	20
- green-up and adjacency.....	20
- visually sensitive areas.....	21
- recreation	21
- cultural heritage resources	22
- wildlife habitat	22
- riparian habitat.....	23
- biodiversity	24
- stand-level biodiversity.....	24
- landscape-level biodiversity.....	25
Twenty-year plan.....	26
Small Business Forest Enterprise Program (SBFEP)	26
Alternative harvest flows	27
Timber processing facilities.....	27
Minister's letters and memorandum	28
Local objectives.....	28
First Nations	29
Unsalvaged losses.....	29
Reasons for decision.....	29
Determination	31
Implementation	31
Appendix 1: Section 8 of the Forest Act.....	33
Appendix 2: Section 4 of the Ministry of Forests Act	35
Documents attached:.....	36
Appendix 3: Minister of Forests' letter of July 28, 1994.....	36
Appendix 4: Minister of Forests' memo of February 26, 1996	37

Objective of this document

This document is intended to provide an accounting of the factors I have considered and the rationale I have employed in making my determination, under Section 8 of the *Forest Act*, of the allowable annual cut (AAC) for Tree Farm Licence (TFL) 43. This document also identifies where new or better information is required for incorporation into future determinations.

Description of the tree farm licence

Tree Farm Licence 43 is issued to Scott Paper Limited and is comprised of three separate blocks located within the Vancouver Forest Region. The Lower Fraser Block is situated along the Fraser River in the Chilliwack Forest District, and is surrounded by the Fraser Timber Supply Area (TSA). The Homathko Block is beside the Homathko River at the head of Bute Inlet in the Sunshine Coast Forest District, and is surrounded by the Sunshine Coast TSA. The third block is the Kingcome Block, situated along the Kingcome River at the head of Kingcome Inlet in the Port McNeill Forest District, and is surrounded by the Kingcome TSA.

The Lower Fraser Block is the only block close to sizeable communities, in this case, Chilliwack, Agassiz, and Rosedale. There are First Nations communities near each of the Lower Fraser, Homathko and Kingcome Blocks.

The total TFL area is 10 106 hectares, of which 6153 hectares or 61 percent is considered productive forest. The remaining 3953 hectares or 39 percent is classified as either gravel bars, lakes, rivers, rockslides, sandbars, or other areas that do not support commercial forests.

The following table shows the proportions of total area and timber harvesting land base in each of the three blocks comprising the TFL.

Block	total area (hectares)	% of total TFL area	current timber harvesting land base (hectares)	% by block of timber harvesting land base
Lower Fraser	3 546.5	35	1 151.9	35
Homathko	5 603.8	55	1 724.1	52
Kingcome	955.9	10	450.1	14
TFL total	10 106.2	100	3 326.1	100

The three blocks are located on alluvial flood plains of the lower reaches of the rivers for which they are named. The blocks are within the Coastal Western Hemlock (CWH) biogeoclimatic zone. The timber harvesting land base is largely covered with cottonwood and red alder, with minor components of other deciduous and coniferous species.

The TFL is unique in the province as it is exclusively managed for the harvesting of deciduous fibre, specifically cottonwood. The annually harvested volume supplies the equivalent of 15 to 25 percent of the wood processed at Scott Paper Limited's pulp mill. Of the wood harvested from the TFL, only the cottonwood and hybrid poplar species are utilized by the pulp mill; all other species harvested are sold or traded for cottonwood.

The Scott Paper pulp mill is located in New Westminster and exclusively produces tissue paper products. The remaining 75 to 85 percent of the fibre requirements for the pulp mill are purchased on the open timber market or from other Kraft pulp mills located in the province.

History of the AAC

On January 1, 1985, TFL 43 was issued to Scott Paper Ltd. to facilitate the harvest and conversion of natural mixed stands to cottonwood or hybrid poplar to supply their pulp mill in New Westminster. During the four-year term of Management Plan (MP) No. 1, the company was authorized to harvest 27 000 cubic metres per year from a total licence area of 9093 hectares. The total operable area was about 4725 hectares.

The management plan was subsequently amended on December 29, 1988 to annually allocate 26 490 cubic metres to the licensee, and 510 cubic metres to the Small Business Forest Enterprise Program (SBFEP). On August 1, 1989, the MP was amended to provide the licensee with 25 980 cubic metres and the SBFEP with 1020 cubic metres. The total AAC of 27 000 cubic metres remained the same.

On January 1, 1990, Management Plan No. 2 was approved with an AAC of 49 600 cubic metres. The increase to the AAC resulted from the addition of the Kingcome Block to TFL 43, and from new information collected during an update of the forest inventory information. The new inventory information resulted in higher projected volumes than those projected in Management Plan No. 1 and was more representative of the actual volume being harvested. The total area of the TFL was then 10 165 hectares.

Management Plan No. 3 was approved on July 1, 1995, with a total AAC of 44 460 cubic metres per year. This AAC was a reduction of 5140 cubic metres (10.4 percent) from the previous level.

Until 1997, Scott Paper Limited of Canada was owned by Kimberley-Clark Ltd, and on June 3, 1997 ownership was transferred to Kruger Incorporated of Montreal, Quebec. As a result of the change in ownership, the licensee's AAC allocation was decreased by five percent as required by the *Forest Act*, Sections 56. The five-percent volume was transferred to the SBFEP.

The current AAC for TFL 43 is set at 44 460 cubic metres, of which 41 657 cubic metres is allocated to the licensee, and 2803 cubic metres is allocated to the Small Business Forest Enterprise Program.

New AAC determination

Effective March 1, 2000, the new AAC for TFL 43 will be 39 900 cubic metres, which represents a 10.2-percent, or a 4560 cubic metre decrease from the current AAC.

This AAC will remain in effect until a new AAC is determined, which must take place within five years of this determination.

Information sources used in the AAC determination

Information considered in determining the AAC for TFL 43 includes the following:

- Statement of Management Objectives, Options and Procedures (SMOOP) for Draft Management Plan No. 4, TFL No. 43, accepted July 17, 1998;
- Existing stand yield tables for TFL 43, approved by British Columbia Forest Service (BCFS) Resources Inventory Branch, March 10, 1999;
- Managed stand yield tables and site index curves, approved by BCFS Research Branch, June 1, 1999;
- Timber Supply Analysis Information Package: TFL 43, Management Plan No. 4, Scott Paper Ltd., accepted June 1, 1999;
- Timber Supply Analysis Report: TFL 43 Management Plan No. 4, Scott Paper Ltd., accepted June 22, 1999;
- TFL 43, proposed Management Plan No. 4, Scott Paper Ltd., submitted July 22, 1999;
- TFL 43, Twenty-Year Plan, Scott Paper Ltd., accepted July 20, 1999, Chilliwack Forest District, June 23, 1999, Sunshine Coast Forest District, and June 2, 1999, Port McNeill Forest District;
- Summary of public input solicited by the licensee regarding the contents of Management Plan No. 4;
- Letter from the Minister of Forests to the Chief Forester, dated July 28, 1994, stating the Crown's economic and social objectives;
- Memorandum from the Minister of Forests to the Chief Forester, dated February 26, 1996, stating the Crown's economic and social objectives regarding visual resources;
- Memorandum from the Deputy Ministers of Forests, and Environment, Lands and Parks (MELP), dated August 25, 1997, conveying government's objectives regarding the achievement of acceptable impacts of biodiversity management on timber supply;
- Memorandum from the Chief Forester and Assistant Deputy Minister of Environment, Lands and Parks, dated August 6, 1998, Procedures for Identifying and Approving Existing Ungulate Winter Ranges;
- Technical information provided through correspondence and communication among staff from BCFS and MELP;

- Technical review and evaluation of current operating conditions through comprehensive discussions with BCFS staff, including the AAC determination meeting held in Victoria on September 29, 1999;
- Field tour of the Lower Fraser Block of TFL 43 on September 24, 1999, with staff from BCFS, Scott Paper Ltd. and the Deputy Chief Forester;
- *Forest Practices Code of British Columbia Act*, (as amended);
- *Forest Practices Code of British Columbia Act Regulations*, (as amended);
- *Forest Practices Code of British Columbia Guidebooks*, BCFS and MELP;
- *Landscape Unit Planning Guide*, BCFS and MELP, March 1999.

Statutory framework

Section 8 of the *Forest Act* requires the chief forester to consider particular factors in determining AACs for TSAs and TFLs. Section 8 is reproduced in full as Appendix 1.

In accordance with Section 23(3) of the *Interpretation Act*, the deputy chief forester is expressly authorized to carry out the functions of the chief forester, which include those required under Section 8 of the *Forest Act*. Consistent with this provision, in a memo dated November 24, 1998, the chief forester requested that I make AAC determinations for a number of TFLs.

In this memo, the chief forester expressed the importance of consistency of judgment in making AAC determinations. I also recognize the need for consistency of approach. I have observed the chief forester during a number of previous AAC determinations and am familiar with the guiding principles that the chief forester has employed in making AAC determinations. I find these principles to be reasonable and appropriate and I have employed them as described below in making my AAC determination for TFL 43.

Guiding principles for AAC determinations

Rapid changes in social values and in our understanding and management of complex forest ecosystems mean that there is always some uncertainty in the information used in AAC determinations. When a large number of determinations are made for many forest management units over extended periods of time, administrative fairness requires a reasonable degree of consistency of approach in incorporating these changes and uncertainty. To make his approach in these matters explicit, the chief forester has compiled a set of guiding principles for AAC determinations, which I have reviewed, adopted and applied as deputy chief forester in AAC determinations for TFLs. These principles are set out below. If in some specific circumstance it may be necessary to deviate from these principles, I will provide a detailed reasoning in the considerations that follow.

Two important ways of dealing with uncertainty are:

- (i) minimizing risk, in respect of which in making AAC determinations, I consider the uncertainty associated with the information before me, and attempt to assess the various potential current and future social, economic and environmental risks associated with a range of possible AACs; and
- (ii) redetermining AACs frequently, to ensure they incorporate current information and knowledge, a principle that has been recognized in the legislated requirement to redetermine AACs every five years. The adoption of this principle is central to many of the guiding principles that follow.

In considering the various factors that Section 8 of the *Forest Act* requires the chief forester to take into account in determining AACs, I intend to reflect as closely as possible operability and forest management factors that are a reasonable extrapolation from current practices. It is not appropriate to base my decision on unsupported speculation with respect either to factors that could work to *increase* the timber supply—such as optimistic assumptions about harvesting in unconventional areas, or using unconventional technology, that are not substantiated by demonstrated performance—or to factors that could work to *reduce* the timber supply, such as integrated resource management objectives beyond those articulated in current planning guidelines or the *Forest Practices Code* (the Code).

The *Forest Practices Code of British Columbia Regulations* were approved by the Lieutenant Governor in Council on April 12, 1995, and released to the public at that time. The *Forest Practices Code of British Columbia Act* was brought into force on June 15, 1995.

Although the Code has been fully implemented since the end of the transition period on June 15, 1997, the timber supply implications of some of its provisions, such as those for landscape-level biodiversity, still remain uncertain, particularly when considered in combination with other factors. In each AAC determination the chief forester takes this uncertainty into account to the extent possible in the context of the best available information. In making my determination for TFL 43, as deputy chief forester, I intend to follow the same approach.

As BC progresses toward completion of strategic land use plans, the eventual timber supply impacts associated with the land-use decisions resulting from the various planning processes—including the Commission on Resources and Environment (CORE) process for sub-regional plans or the Land and Resource Management Planning (LRMP) process—are often discussed in relation to current AAC determinations. Since the outcomes of these planning processes are subject to significant uncertainty before formal approval by government, it has been and continues to be the position of the chief forester that in determining AACs it would be inappropriate to attempt to speculate on the impacts on timber supply that will eventually result from land-use decisions that have not yet been taken by government. Like the chief forester, I will therefore not consider the possible impacts of existing or anticipated recommendations made by such planning processes, nor attempt to anticipate any action the government could take in response to such recommendations.

Moreover, even where government has made a formal land-use decision, it may not always be possible to fully analyze and account for the consequent timber supply impact in a current AAC determination. In many cases, government's land-use decision must be followed by a number of detailed implementation decisions. For example, a land-use decision may require the establishment of resource management zones and resource management objectives and strategies for these zones. Until such implementation decisions are made it would be impossible to fully assess the overall impacts of the land-use decision. Nevertheless, the legislated requirement for five-year AAC reviews will ensure that future determinations address ongoing plan implementation decisions. However, where specific protected areas have been designated by legislation or by order in council, these areas are deducted from the timber harvesting land base and are no longer considered to contribute to the timber supply in AAC determinations.

Forest Renewal BC (FRBC) funds a number of intensive silviculture activities that have the potential to affect timber supply, particularly in the long term. As with all components of an AAC determination, like the chief forester, I require sound evidence before accounting for the effects of intensive silviculture on possible harvest levels. Nonetheless, I will consider information on the types and extent of planned and implemented practices as well as relevant scientific, empirical and analytical evidence on the likely magnitude and timing of any timber supply effects of intensive silviculture.

Some have suggested that, given the large uncertainties present with respect to much of the data in AAC determinations, any adjustments in AAC should wait until better data are available. I agree that some data are not complete but this will always be true where information is constantly evolving and management issues are changing. Moreover, in the past, waiting for improved data created the extensive delays that resulted in the urgency to redetermine all the AACs in the province between 1992 and 1996, many of which were outdated. In any case, the data and models available today are improved from those available in the past, and will undoubtedly provide for more reliable determinations.

Others have suggested that, in view of data uncertainties, the chief forester should immediately reduce some AACs in the interest of caution. However, any AAC determination made by the chief forester or myself must be the result of applying our individual judgment to the available information, taking any uncertainties into account. Given the large impacts that AAC determinations can have on communities, no responsible AAC determination can be made solely on the basis of a response to uncertainty. Nevertheless, in making my determination, I may need to make allowances for risks that arise because of uncertainty.

With respect to First Nations' issues, I am aware of the Crown's legal obligations resulting from recent court decisions including those in the Supreme Court of Canada. The AAC that I determine should not in any way be construed as limiting those obligations under these decisions, and in this respect it should be noted that my determination does not prescribe a particular plan of harvesting activity within TFL 43.

With respect to future treaty decisions, as with other land-use decisions it would be inappropriate for me to attempt to speculate on the impacts on timber supply that will result from decisions that have not yet been taken by government.

Overall, in making this AAC determination, as the deputy chief forester, I am mindful of the chief forester's obligation as steward of the forest land of British Columbia, of the mandate of the Ministry of Forests as set out in Section 4 of the *Ministry of Forests Act*, and of his responsibilities under the *Forest Practices Code of British Columbia Act*.

Role and limitations of the technical information used

Section 8 of the *Forest Act* requires the chief forester to consider biophysical as well as social and economic information in AAC determinations. A timber supply analysis, and the inventory and growth and yield data used as inputs to the analysis, typically form the major body of technical information used in AAC determinations. Timber supply analyses and associated inventory information are concerned primarily with biophysical factors—such as the rate of timber growth and definition of the land base considered available for timber harvesting—and with management practices. Timber supply analyses also indirectly incorporate some economic information such as operability classifications that define the types of terrain and timber that can be physically and economically accessed given current technology and markets.

However, the analytical techniques used to assess timber supply are simplifications of the real world. There is uncertainty about many of the factors used as inputs to timber supply analysis due in part to variations in physical, biological and social conditions, although ongoing science-based improvements in the understanding of ecological dynamics will help reduce some of this uncertainty.

Furthermore, technical analytical methods such as computer models cannot incorporate all of the social, cultural and economic factors that are relevant when making forest management decisions. Therefore, technical information and analysis do not necessarily provide the complete answer or solution to forest management problems such as an AAC determination. The information does, however, provide valuable insight into potential impacts of different resource-use assumptions and actions, and thus forms an important component of the information I must consider in AAC determinations.

In making the AAC determination for TFL 43, I have considered known limitations of the technical information provided, and I am satisfied that, subject to specific uncertainties and cautions identified through out this document, the information provided a suitable basis for my determination. In particular, I have taken into account that the area-based approach used in the timber supply analysis of TFL 43 may not provide as detailed and as thorough an examination of the harvest flow options afforded by a volume-based analysis. For more detailed information see below, under "Timber Supply Analysis", regarding the benefits and limitations of this area-based analysis.

Timber supply analysis

In considering the factors required under Section 8 of the *Forest Act* to be addressed in AAC determinations I am assisted by timber supply forecasts and associated harvest projections provided to me through the management planning process for tree farm licences. The timber supply analysis was undertaken by the licensee, and reviewed and approved by the BC Forest Service staff.

On TFL 43, cottonwood is the most abundant tree species and is the focus of intensive silviculture management. Limited productivity and growth and yield data is available for natural cottonwood stands and genetically improved regenerated stands. While limited data currently exists for these stands, it is known that the rotation age for managed cottonwood stands is short—about thirty years—in comparison to coniferous stands.

The limited availability of productivity data for cottonwood stands, combined with the knowledge of short rotations for cottonwood stands, has led the licensee to undertake an area-based rather than a volume-based analysis to project timber supply for TFL 43. For this determination, as for previous determinations, the licensee has provided the results of an area-based analysis for each of the three blocks (the Kingcome, Homathko and Lower Fraser blocks) within TFL 43.

Generally for each AAC determination, a timber supply analysis is carried out using an information package, which includes data and information from three categories: land base inventory, timber growth and yield, and management practices. Using this set of data, and a computer model, a series of timber supply forecasts are produced. These include sensitivity analyses to assess the timber supply effects of uncertainties or changes in various assumptions around a baseline option, normally referred to as the “base case” forecast.

The timber supply analysis completed by the licensee as part of MP No. 4 indicated that under current management, the AAC of 44 460 cubic metres (the expected volume from the allowable harvest area of 128.4 hectares per year), could not be maintained. A total decrease of about 570 hectares in the size of the timber harvesting land base resulted in a corresponding decrease to the projected harvest level. Due to the amount of volume in existing mature stands, the proposed harvest level reduction is not proportional. Therefore, the licensee stated that the projected annual harvest rate of 108.2 hectares (approximately 39 914 cubic metres per year) could be maintained over the next rotation period and best represents current practice. For the purposes of this determination I consider this forecast to represent the *base case*.

For the area-based analysis, the rotation period was an important consideration and was determined to be equal to the minimum harvestable age plus the regeneration delay. In the analysis, the harvest level was forecast for the rotation period and assumed that during each year an equal portion of the available timber harvesting land base would be harvested. Using the twenty-year plan, cutblocks were then located on maps so that during each year of the twenty-year period, the annual harvest area could be identified and scheduled for harvest. The volume estimates from all the cutblocks scheduled for harvest during the first five years of the twenty-year plan were totalled and divided by five years. The merchantable volume within each cutblock was estimated using the information described below under “volume estimates for existing stands”. Using this approach, the licensee proposed a harvest level of 39 913.8 cubic metres per year.

The licensee based the projected harvest level on a combination of current management and land base assumptions. Sensitivity analyses were not undertaken as part the licensee's area-based analysis. However, it follows that any change in the land base or timber volume from that applied in the base case would result in a corresponding change in the base case harvest level. I have considered this correlation and I am satisfied that this

approach does enable me to evaluate any uncertainties in the data and risk to the base case projection.

Compared to volume-based analysis normally used for timber supply analysis in BC, the method used for the area-based analysis conducted by the licensee is limited in the amount of information that it provides regarding harvest flow and timber supply dynamics. The area-based analysis essentially provides harvest level information for the short term. Due to this limitation, in the previous AAC determination for TFL 43, the chief forester requested that the licensee conduct a volume-based analysis for the Lower Fraser Block. His intention was that eventually the timber supply analysis for TFL 43 would be fully volume-based. Further to this, I have discussed the development of a volume-based analysis as noted below, under "Implementation."

As requested for this determination, the licensee undertook a volume-based analysis and provided various sensitivity analyses for the Lower Fraser Block, using the forest estate model COMPLAN. The timber harvesting land base used in the volume-based analysis was essentially the same as applied in the area-based analysis. Stands were aggregated into seven analysis units based on site index within four strata – natural cottonwood, veneer plantations, hybrid poplar, and conifers. Yield tables for existing and regenerated stands were developed using procedures accepted by BC Forest Service staff. All stands were assumed to be regenerated to pulpwood hybrid poplar stands. The minimum harvestable age was assumed to be 25 years for deciduous stands and 121 years for conifer stands. Visually sensitive areas were accounted for using forest cover requirements consistent with standard procedures.

For the Lower Fraser Block, to achieve a non-declining and even-flow, the volume-based analysis reported an initial harvest level of 13 375 cubic metres per year. In comparison, the area-based analysis reported an initial harvest level of 15 011 cubic metres per year. However, the licensee provided an alternative volume-based harvest flow which showed that an initial harvest level of 15 000 cubic metres per year could be attained for ten years. In the second decade the harvest level would decline to 11 600 cubic metres per year, but then increase in the third decade to 15 000 cubic metres per year for the long term.

Although there are some uncertainties in these comparisons, I find that the volume-based analysis illustrates that the area-based harvest level is reasonable for the Lower Fraser Block. However, the volume-based analysis also illustrates the concern that the area-based analysis method used by the licensee provides limited information on timber supply in the medium and long term. I encourage the licensee to conduct further studies to confirm site productivity and cottonwood yield estimates so that more reliable volume-based projections of timber supply for the short to long term are available for future AAC determinations.

Given the uncertainty of the data assumptions regarding growth and yield information and associated productivity, I am satisfied that the area-based analysis is currently more appropriate for use than a volume-based approach. The area-based approach reflects current information and management practices to the extent possible. For this determination, as discussed above in "Role and limitations of the technical information used," and in view of the current ongoing uncertainties, I consider that the area-based analysis provides a suitable basis from which to assess the timber supply.

Consideration of factors as required by section 8 of the *Forest Act*

Section 8 (8)

In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider

- (a) the rate of timber production that may be sustained on the area, taking into account
 - (i) the composition of the forest and its expected rate of growth on the area,

Land base contributing to timber harvest

- general comments

The total area of TFL 43 is 10 106 hectares, a decrease of 23 hectares from the previous determination. Schedule 'A' land (private land) is 1224 hectares and Schedule 'B' land (Crown forest) is 8882 hectares. The decrease of 23 hectares was the result of using improved mapping, and of area lost due to erosion along the main channel of large rivers. The productive forest land is about 6153 hectares, or approximately 61 percent of the total TFL area.

As part of the process used to define the timber harvesting land base (i.e., the land base estimated to be economically and biologically available for harvesting) a series of deductions were made from the productive forest land base. These deductions accounted for factors that operate to reduce the forest area available for harvesting for economic, ecological or social reasons. In timber supply analysis, assumptions, and if necessary, projections, must be made about these factors prior to quantifying appropriate areas to be deducted from the productive forest area in order to derive the timber harvesting land base.

Prior to the AAC determination, a small error due to the reporting of environmentally sensitive areas (ESAs) for the Homathko and Kingcome Blocks was detected resulting in a small adjustment to the timber harvesting land base within each of the two blocks. Both the total timber harvesting land base and, the base case harvest level were adjusted, for further details see below, under *volume estimates for existing stands*. These corrected figures have been incorporated into the information presented in this determination.

In reviewing the deductions applied to derive the timber harvesting land base, I am aware that some areas may have more than one classification, for example ESAs may also lie within riparian areas. To ensure the accuracy of the timber harvesting land base calculation, it is imperative that no deduction be made more than once in respect of the same area of land, by virtue of it or of some part of it coming under more than one classification. Hence, a specific deduction for a given factor reported in the analysis or the AAC rationale does not necessarily reflect the total area with that classification; some portion of it may have been deducted earlier under another classification. For TFL 43, I acknowledge that the licensee used the above approach to appropriately derive the timber harvesting land base and I find the results to be reasonable for use in this determination.

- new parks

On July 23, 1997, the Lower Homathko Estuary Protected Area was legislated as a park and covers about 450 hectares. Of this area, 231 hectares are Crown land within the TFL, and none of the area contributed to the timber harvesting land base. Due to the new designation, the park area was appropriately removed from the TFL land base.

- non-forest

The non-forested area in TFL 43 includes rock, rivers, swamps, lakes, gravel bars, classified roads, sandbars and the Kilby Nursery. To account for these areas in the base case, a total of 3723 hectares were excluded from contributing to the productive forest land base. BCFS staff have reviewed this information and indicate that the area removed reflects the current area classified as non-forest.

- physical and economic operability

Limitations due to terrain characteristics, accessibility and economics typically impact where forest management and harvesting operations can be undertaken. Only areas that are considered operable, given current circumstances, contribute to the timber harvesting land base.

For TFL 43, the licensee defined operability based on physical accessibility and economic viability. A total of 262 hectares were considered inaccessible and were removed from the productive forest land base. Economic viability was determined by comparing the cost of harvesting to the expected value of the timber. A total of 546 hectares was considered uneconomic to harvest and was removed from the productive forest.

The licensee classified the area located between the Jewakwa River and Heakamie River in the Homathko Block as economically inoperable due to the cost of re-constructing a bridge to access timber currently considered as low value and of low quality. This classification was reported to apply to a total of about 546 hectares. In Management Plan No. 3, the licensee noted the difficulty of accessing this area. For Management Plan No. 4, due to the deteriorating economic viability of the area, it was considered uneconomic to harvest. A review of past harvesting activities indicated that at one time adequate access did exist and harvesting had occurred in this area, therefore I am concerned about the deduction of such a large and potentially harvestable area.

To account for physically and economically inoperable areas, a total of about 808 hectares were deducted from the productive forest land base. I accept the accounting of the inoperable area as reflecting current practice; however, as below under, "Reasons for Decision," I encourage the licensee to explore the viability of developing access into the area currently considered inaccessible within the Homathko Block.

- non-commercial cover

In the analysis, 755 hectares were deducted from the productive forest to account for non-commercial brush species. Most of these brush areas are in isolated patches or on newly accreted areas within flood plains. The licensee noted that about 50 hectares of brush could be rehabilitated and subsequently included in the timber harvesting land base;

however until an evaluation is completed, these areas are excluded from contributing to the timber harvesting land base.

As timber production is unlikely on areas covered with non-commercial cover, the licensee has appropriately excluded these areas from contributing to timber supply. However, if any of these areas remain stable over time and develop merchantable timber, they will be considered in future timber supply analyses.

- low productivity areas

Sites with low productivity resulting from inherent site factors such as low nutrient availability, exposure, excessive moisture, etc. are generally removed from the productive forest land base for the purposes of timber supply analysis.

For TFL 43, no areas were found with these site characteristics and therefore no deductions were applied to account for low site productivity. I have reviewed the criteria used by the licensee to identify potential low productive areas, and conclude that this factor was appropriately considered in the timber supply analysis.

- environmentally sensitive areas

Areas within the TFL that are environmentally sensitive or have significantly valuable resources other than timber, are captured by the environmentally sensitive area designation on the forest inventory file. For TFL 43, there are 1091 hectares identified as environmentally sensitive areas for recreation, and fish and wildlife habitat. Due to other overlapping land base reductions, a total of 1019 hectares was deducted from the productive forest. Details of the specific environmentally sensitive areas and additional riparian habitat are considered below, in the section entitled, Integrated resource management objectives.

- other sensitive sites – erosion and accretion

For the purposes of the timber supply analysis, additions and reductions to the productive land base were assessed to account for recent erosion and accretion processes. The licensee tracks land base changes using aerial photographs produced every five years. New aerial photographs were compared with previous aerial photographs and any changes noted were updated on the forest inventory.

Accreted areas were not immediately added to the productive forest until the trees were considered to have reached a minimum height of three metres, crown closure was greater than 50 percent, and the areas were stable and suitable for timber harvesting, after taking into account environmental and economic considerations. About 10 hectares were identified as unavailable due to recent erosion along the main channel of large rivers, and were excluded from the productive forest.

- problem forest types

Problem forest types are defined as stands that are operationally accessible and exceed the low site productivity criteria, but are not consistently utilized. As the licensee is utilizing all forest types, no reductions were required to account for problem forest types.

- estimates for roads, trails and landings

Classified roads are captured as non-productive areas on the forest inventory maps and are subsequently excluded from contributing to the productive forest land. The classified roads totalled about 110 hectares, and as there are no classified trails or landings, no further accounting was necessary.

Existing unclassified roads, trails and landings are mapped as lines on the forest cover inventory maps. To account for unclassified roads, the licensee assumed a 10-metre right-of-way resulting in a total deduction of 15 hectares from the productive forest. No additional reductions were required for unclassified trails and landings as these areas are rehabilitated and restocked immediately following harvesting. BCFS district staff confirmed that rehabilitation and restocking occurs immediately after harvest.

For future road, trails and landings, the licensee considered the Lower Fraser Block as completely roaded, therefore no future area reductions were considered necessary. The Homathko and Kingcome Blocks still require some future access and the licensee estimated that approximately 50 hectares or about one percent of the timber harvesting land base would be required for future roads. As future trails and landings are planned to be rehabilitated and restocked immediately after harvesting, no further area reductions are required.

In reviewing the assumptions for the existing classified and unclassified roads, I find the roaded areas appropriately mapped and accounted for in the timber supply analysis. BCFS district staff have reviewed silviculture prescriptions for future roads in the TFL, and confirm that approximately one percent of the area is planned for future roads.

I have reviewed the deductions to account for existing and future roads, trails and landings, and find them acceptable for use in this determination.

Existing forest cover inventory

- current forest inventory

The original forest inventory was completed in the 1980's as part of the issuance of the TFL. To account for recent harvesting and reforestation activities, the licensee updated the forest cover inventory to September 1998. As well, operational cruise information and regeneration assessment data was incorporated to update individual stands.

Also, the TFL boundaries were updated from recently produced aerial photography. In addition, the forest cover base maps were converted to North American Datum 1983 and now match the Crown's Terrain Resource Information Mapping standards.

In the previous rationale, the chief forester had anticipated that a provincial inventory audit of the TFL would be undertaken to examine the accuracy of the existing inventory, and to assist in setting priorities for regional re-inventory activities. However, an inventory audit has not yet been completed due to changes in the inventory audit program and a limited supply of resources.

To assist in the collection of forest inventory information and the development of localized growth and yield tables for cottonwood and hybrid poplar stands, the licensee has established 20 permanent sample plots within the TFL. The plots are re-measured on

a five-year cycle and are planned for retention until age 40 to 50 years. Ten of the 20 permanent sample plots are located within the Lower Fraser Block. Although harvesting has been occurring within the Lower Fraser Block since the 1940's, inventory information on the growth of intensively managed stands, and stands converted to cottonwood/poplar has only been available during the past 20 years.

The original inventory for the Homathko Block was based on very broad forest typing that resulted in generalization of stand structure. Four permanent sample plots are now established in this block. For the Kingcome Block, the inventory information was completed in 1988 and was collected in a process similar to the one used in the Homathko Block. Six new permanent sample plots have now been established in this block. The licensee plans to install three additional plots in the Fraser Block and two in the Homathko Block.

The long-term goal is to have inventory information and growth and yield information based on growing conditions specifically related to the TFL. Ongoing maintenance and tracking of the data from the permanent sample plots will be important.

I accept the existing forest inventory as the best available information. I will consider any future results from the permanent sample plots and updated forest inventory when available in future determinations.

- age-class distribution

The distribution of age categories in the TFL is summarised as follows. On the timber harvesting land base, approximately three percent of the stands are older than 140 years, thirty-two percent of the stands are between 60 years and 140 years, and 65 percent are less than 60 years. Less than one percent of the area is classified as not-satisfactorily-restocked.

The Lower Fraser Block is comprised mostly of cottonwood stands less than 50 years of age, and no stands are older than 70 years. In the Homathko Block, the majority of deciduous stands are under 20 years, or between 50 and 80 years old and the remaining stands are spruce older than 200 years. The Kingcome Block's age distribution is predominately less than 120 years, with the largest age class of stands between 70 to 80 years old.

- species profile

The timber harvesting land base is comprised primarily of deciduous stands: about 79 percent is cottonwood, 14 percent is red alder, and less than one percent is other types of deciduous stands. The remaining area is comprised of spruce, which accounts for approximately six percent, and less than one percent is classified as not-satisfactorily-restocked.

Expected rate of growth

- site productivity estimates

Inventory data includes the estimate of site productivity for each stand and is usually expressed in terms of site index. Site index is a measure of site quality, or productivity, based on the height, age, and species of the dominant trees. The productivity of a site

largely determines how quickly trees will grow, and therefore affects expectations of the time it will take seedlings to reach green-up conditions. Site productivity also affects the age at which stands will reach a merchantable size or minimum harvestable age, as well as the amount of timber that will grow in harvested stands.

The TFL is located in areas of fertile productive soil, with favourable growing conditions, and rapid growth of cottonwood and hybrid poplar. However, due to the broad inventory classification for TFL 43, with tree heights reported in five metre increments, estimating site productivity for this TFL is difficult. This is further complicated by the management objective of converting natural stands to managed cottonwood and hybrid poplar stands.

For the timber supply analysis, for cottonwood and hybrid poplar plantations, site indices were assigned to the old site classes (good, medium and poor) found on the inventory file using a combination of field reconnaissance, permanent sample plot data, and field observation. For all other species, site indices were assigned based on the mid-point of site classes. This was necessitated by the generalized height data found on the forest inventory and BCFS Research Branch staff accept these assignments. Site index assignments for the area-based analysis—in the case of TFL 43—are not as critical as would be required for a volume-based analysis

Site productivity tends to affect the long-term rather than the short-term timber supply, and is therefore not a significant risk to timber supply at this time. I find the assignment of site indices adequate for this determination, however I strongly recommend (see also, under "Implementation") that the licensee continue with the development and tracking of site productivity information from permanent sample plots, particularly through the installation of more permanent sample plots in the Kingcome and Homathko Blocks.

- volume estimates for existing stands

The licensee has continued the development of growth and yield tables for the prediction of existing stand volumes using information gathered from the inventory sample plots, using the Variable Density Yield Projection (VDYP) growth and yield model. However the results are not yet adequate for a volume-based timber supply analysis for TFL 43.

To determine the associated volumes for the area-based analysis results, the licensee used two methods to estimate the existing mature timber volumes. For the Kingcome Block, six strata had average volume lines (AVLs) developed in 1988. For these six strata, the estimated growth for the past 10 years using VDYP - Version 6.4, was added to the original AVLs. The results of these calculations updated the 1988 volumes to 1998 for the six strata.

For the remaining mature stands within the three blocks, the licensee estimated volumes using VDYP - Version 6.4, based on species composition, age and height of leading species. Crown closure was estimated using the Fraser TSA averages. VDYP estimates included appropriate reductions to account for decay, waste and breakage as discussed further, under Decay, waste and breakage.

As mentioned above, under the land base section *general comments*, prior to the AAC determination, a small error in the amount of area reported for the Homathko and Kingcome Blocks was detected resulting in a small adjustment to the timber harvesting land base within each of the two blocks. Although the total area for the TFL was not

affected, the total estimated harvest level was adjusted. The correction increased the base case harvest level by 151 cubic metres per year and this has been incorporated into the information presented in this determination.

Although localized information is still not available for TFL 43, I am satisfied that area-based approach as presented in MP No. 4 provides a suitable method of projecting timber supply.

- volume estimates for regenerated stands

Currently, estimating the volume of managed regenerating cottonwood and hybrid poplar stands is preliminary. Until local growth and yield data has been collected, the licensee and BCFS Research Branch staff have agreed to utilize volume estimates generated for unmanaged stands using VDYP. To reflect the volume gains from the management of regenerating stands, projected VDYP volumes are increased by 10 percent for the Homathko and Kingcome Blocks, and 30 percent for the Lower Fraser Block. The licensee is continuing the development and maintenance of permanent sample plots with the objective of developing managed stand yield tables in cooperation with BCFS Research Branch.

In determining the harvest levels for this determination, it was not necessary to factor the volume estimates for regenerating stands into the base case. The area-based analysis utilized the existing stand VDYP volumes based on the proposed cutblocks planned for harvest over the next five years. As discussed above, under *site productivity estimates*, the estimates regarding site productivity and hence regenerating stand volumes tend to affect the long-term rather than the short-term timber supply, and is therefore not a significant risk to timber supply at this time. For this determination, I have made no adjustments to timber supply regarding this factor.

- minimum harvestable age

Minimum harvestable age is an estimate of the earliest age at which a stand is considered to be harvestable. The minimum harvestable age will affect the rate that the existing stands may be harvested to maintain a stable flow of harvestable timber over time.

For cottonwood stands, the licensee identified three desirable characteristics required before reaching the minimum harvestable age. The first criterion is that the wood quality be acceptable for use as pulpwood. Secondly, the average stand diameter at breast height is greater than 35 centimetres and thirdly, the minimum height is 30 metres. Using these criteria, the licensee estimated that the minimum harvestable age for cottonwood is 25 years for the Lower Fraser Block, and 30 years for the Homathko and Kingcome Blocks.

All coniferous stands are considered harvestable at 121 years old.

Licensee staff indicated that the minimum harvestable age is realistic as reflected by the existing natural stands. However, only limited information is available to verify the minimum harvestable ages since the existing managed stands are currently 12 years or younger, and are considered too young to be used to report when a stand will reach a minimum harvestable condition. The licensee has acknowledged this uncertainty, and has in their view taken a cautious approach to forecasting annual harvest levels at this time.

BCFS staff state that it is likely that many of the managed cottonwood and hybrid poplar stands may be harvestable at earlier ages than presented in the timber supply analysis because the ages are considered more of a desired age rather than a minimum harvestable age. Also, BCFS staff note that the minimum harvestable age is based on natural stand growth information and not on intensively managed stands.

In reviewing the impacts to harvesting rates in an area-base analysis, it is apparent that the timber supply is very sensitive to changes in minimum harvestable ages. A reduction to the minimum harvestable age would likely lead to an increase in hectares considered available for harvesting. However, until such time as more specific site productivity data is available, I find the minimum harvestable ages reflected in the analysis reasonable and suitable for use for this determination.

Harvesting profile

The harvesting profile presented by the licensee is to continue the conversion of the operable area to high-yielding, short-rotation cottonwood or hybrid poplar stands, with a balanced age-class distribution. Most of the Lower Fraser Block is already converted to deciduous stands, with the Kingcome Block having 60 percent of the area converted to deciduous, and half of the Homathko Block converted to deciduous.

The licensee's harvesting plans reflect the objective to minimize growth losses and to utilize the oldest stands first. Having reviewed these assumptions with BCFS district staff, I find that they adequately reflect current practice and are acceptable for consideration in this determination.

- (ii) the expected time that it will take the forest to become re-established on the area following denudation,**

Regeneration delay

Regeneration delay is the period between harvesting and the time at which an area is occupied by a specified minimum number of acceptable, well-spaced seedlings.

In the Lower Fraser Block, all harvested areas are immediately site prepared and planted with genetically improved cuttings or whips. In the Homathko and Kingcome Blocks, site preparation of harvested areas may initially include some light clearing and brushing, and then the sites are planted with unrooted cottonwood cuttings. Natural regeneration may supplement these stands, especially after winter or spring harvesting. Areas where partial or selection harvesting has occurred are planted, for example in riparian management zones.

Harvesting activities are planned to achieve prompt reforestation, and on the more productive sites with rapid establishment, young cottonwood and hybrid poplar saplings are reported to grow over three metres per year.

The analysis assumed regeneration delays of one year for the Lower Fraser Block, and three years for the Homathko and Kingcome Blocks. For these latter two blocks, the reforestation time varies depending upon the regeneration method of either planting within one year or achieving natural regeneration within three years. BCFS district staff

indicate that the three-year regeneration delay applied in the analysis represents a conservative approach in averaging a range of one to three years.

Results from the area-based timber supply analysis show that timber supply is very sensitive to changes in regeneration delay. For the Homathko and Kingcome Blocks, specific information was not provided to indicate with certainty how frequently harvested areas are reforested less than three years, however, from the information provided, I find that the regeneration delay is not more than three years. Until specific information is provided regarding shorter regeneration delays, I am satisfied with the accounting of regeneration delay in the analysis for this determination.

Not-satisfactorily-restocked areas

Not-satisfactorily-restocked (NSR) areas consist of productive forest land that has been harvested but has not yet been regenerated, either naturally or by planting to the specified or desired "free growing" standard for the site.

On TFL 43, there are approximately 44 hectares of NSR area, as identified in the September 1998 inventory update. There are no backlog NSR areas in the TFL. The 44 hectares of NSR represents less than one year of harvest, thereby again indicating that the regeneration delay in the Homathko and Kingcome blocks may be overestimated.

The 44 hectares represent the area most recently harvested and not yet considered re-stocked. The licensee's performance and the management plan commitments are reflective of very prompt reforestation. I am satisfied that this factor has been appropriately considered in the analysis for this determination.

Impediments to prompt regeneration

The licensee reported in the MP No. 4 that there are no impediments to regeneration, and I accept the information as provided.

(iii) silvicultural treatments to be applied to the area,

Silvicultural systems

The silvicultural system primarily applied in TFL 43 is clearcutting, with immediate reforestation to cottonwood or hybrid poplar stands. This system reflects the licensee's objective of short rotation stand management and the highly shade intolerant nature of cottonwood and hybrid poplar trees. Some areas are partially or selectively harvested, such as the wildlife and riparian management zones, and have been accounted for in the analysis as discussed below, under *wildlife habitat* and *riparian habitat*.

I am satisfied that the silviculture systems employed in the TFL are appropriate to meet the management plan objectives, and I find that this factor has been accounted for adequately in the timber supply analysis.

Incremental silviculture

On TFL 43, basic silviculture includes site preparation, and either planting or natural stocking of suitable species and treatments to ensure the area is appropriately reforested to provincial standards. Basic silviculture includes the management objective of converting harvested areas to managed cottonwood and hybrid poplar stands.

Incremental silviculture activities are only undertaken on the Lower Fraser Block, and include juvenile spacing, fertilization, genetic gain and pruning. Each of the treatments are discussed below under their appropriate sections.

- juvenile spacing, pruning and fertilization

Scott Paper has undertaken some pruning treatments in the intensively managed Lower Fraser Block.

On TFL 43, juvenile spacing is only applied to a limited extent. On the Lower Fraser Block, management of inter-tree spacing is primarily achieved by planting stock at appropriately spaced intervals to facilitate optimum growth. On the Homathko Block, a small juvenile spacing trial has been established to determine the response of spacing mixed hybrid poplar and native black cottonwood stands to different densities.

Fertilization treatments have been applied to the Lower Fraser Block where the licensee has used a combination of commercial inorganic fertilizer, and organic material composed of sewage sludge mixed with paper mill waste fibres. Treatments occur several weeks after planting, with follow-up treatments applied when necessary.

- genetic gain

Genetic gain is the increased growth resulting from the use of genetically improved seed or selected vegetative propagates (clones). The licensee has a planting stock nursery at Harrison Mills where clonal testing is ongoing. The licensee is using clonal stock with the desired traits of being able to adapt to wet sites and have some resistance to forest pests. Although 400 clones are available to the licensee, only 50 clones are currently used in the silviculture program.

In summary, I note the level of commitment the licensee has demonstrated by the use of incremental silviculture treatments. Although, the incremental silviculture treatments are not specifically reflected in the timber supply analysis, they do contribute to the short rotation ages expected for TFL 43. Also, any potential growth and yield impacts will be reflected in the permanent sample plot measurements and can be considered in future AAC determinations. For this determination, I have made no adjustments to timber supply for this factor.

- (iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,**

Utilization standards

Utilization standards define the species, dimensions and quality of trees that must be harvested and removed from an area during harvesting operations. The volume estimates used in the analysis reflect the utilization levels that are applied in current practice, and I have taken the information into consideration in making my determination.

Decay, waste and breakage

Generally, VDYP is used to generate volume estimates for natural stands, accounting for the volume lost due to decay, waste and breakage. For coniferous stands, decay losses are incorporated into VDYP volume estimates, while waste and breakage factors are applied based on localized forest inventory zones. For TFL 43, all volume projections, except cottonwood volumes, reflect the BC Forest Service standard decay, waste and breakage factors.

Cottonwood volumes only reflect decay losses, as the zonal average waste and breakage figures are not representative of TFL 43. This approach has been reviewed and is supported by the BC Forest Service Resources Inventory Branch. Also, it has been found that cottonwood stands are generally harvested at younger ages than coniferous stands, resulting in higher utilization of the cottonwood and poplar stands. BCFS staff reviewed the loss factors and considered them representative of the actual losses within the TFL.

The process of accounting for local decay, waste and breakage was reviewed and accepted by BCFS Resource Inventory Branch staff. For this determination, I have considered the decay, waste and breakage information suitable as provided.

- (v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and**

Integrated resource management (IRM) objectives

The Ministry of Forests is required under the *Ministry of Forests Act* to manage, protect and conserve the forest and range resources of the Crown and to plan the use of these resources so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated. Accordingly, the extent to which integrated resource management objectives for various forest resources and values affect timber supply must be considered in AAC determinations.

- green-up and adjacency

Objectives to maintain forest cover for resource values such as wildlife, soils, water and visual quality guide harvesting practices. Areas adjacent to cutblocks are not permitted to be harvested until the cutblocks have regenerated, and the young stands have attained an acceptable green-up height. Generally in volume-based analysis, the following criteria are applied in the IRM zone (general forestry area)—a three-metre green-up height and a maximum of 25 percent allowable disturbance—to reflect adjacency and forest cover requirements.

On TFL 43, on average, the required green-up height of three metres can be achieved in three years following re-stocking. The short time to achieve green-up is reflective of the fertile soil, favourable growing conditions, and rapid growth of cottonwood and hybrid poplar. Adjacency, or the maximum area that can be less than the green-up height, is largely limited by: stand maturity and non-timber resources; and by block coverage requirements and cutblock size as allowed under the Forest Practices Code.

I note that the spatial and temporal aspects of the twenty-year plan (as discussed below, under *Twenty-year plan*) confirm that green-up and adjacency requirements can be achieved without impacting timber supply. I find that the consideration of adjacency and green-up requirements are reasonable, and I have made no further adjustments to timber supply regarding this factor.

- visually sensitive areas

Careful management of scenic areas visible from communities, public use areas and travel corridors is an important IRM objective. The Code enables the management of visual resources by providing for scenic areas to be identified and made known, and by providing for the establishment of visual quality objectives (VQOs). To achieve this, visual landscape inventories are carried out to identify, classify and record those areas of the province that are visually sensitive.

As visually sensitive areas are identified, corresponding VQOs are developed resulting in possible constraints on timber harvesting, road building and other forest practices. Guidelines to meet VQOs include setting a maximum percentage of a landscape allowed to be in a disturbed state at any one time, and setting visually effective green-up targets that must be achieved before additional harvesting is permitted.

Visually effective green-up refers to the stage at which a stand of forested timber is perceived by the public to have satisfactorily achieved green-up from a visual standpoint. The green-up height and associated age within visually sensitive areas therefore might be greater than the green-up height applied to non-visually sensitive areas.

In the Lower Fraser Block, portions of the block are within the Highway 1 and Highway 7 scenic areas. In 1992, a visual landscape inventory was completed and resulted in the identification of the Fraser River scenic corridor. No visual landscape inventories and associated VQOs have been specifically developed for the Kingcome and Homathko Blocks due to their remote location and poor accessibility.

The visual landscape inventory classified the Lower Fraser Block into two VQO categories—91 hectares of productive forest was classified as partial retention and 1648 hectares of productive forest were classified as modification. The maximum allowable disturbance in partial retention and modification areas is respectively, 15 percent and 25 percent of the productive forest.

The area-based analyses did not explicitly account for impacts due to visual quality objectives. Nonetheless, from an examination of the twenty-year plan and from a review of the proposed rate of harvesting based on the rotation ages, BCFS staff report that visual quality objectives can be implemented operationally.

For the Lower Fraser Block, the Chilliwack Forest District Manager has made the scenic areas known to the licensee, and the licensee is working to achieve these requirements. I find this factor to be adequately addressed for this determination.

- recreation

In 1992, the licensee completed a recreation inventory and analysis for TFL 43. The Homathko and Kingcome Blocks have limited recreational resources due to the

remoteness and inaccessibility to the general public. The Lower Fraser Block has high recreational use that is well dispersed along gravel and sandbars for fishing and boating. Public use of the forested land within the block is limited as the understory is dense and difficult to traverse. The licensee provides for access where feasible, however, some restrictions do occur when access is through private land within the tree farm licence area.

As the majority of recreational values in the Lower Fraser Block are associated with fishing and wildlife habitat, the reductions to the productive forest for high and moderate environmental sensitivity for fisheries and wildlife overlap with recreational values. See also *environmentally sensitive areas*. Approximately 1019 hectares of high or moderate environmentally sensitive areas for recreation, fisheries and wildlife were excluded from the productive forest.

For the purpose of this determination, I am satisfied that the licensee has used the best available information and has adequately accounted for recreational activities in the analysis.

- *cultural heritage resources*

Cultural heritage resources are defined in the *Forest Act* and include archaeological sites, traditional use sites and objects such as culturally modified trees. Identified archaeological sites and culturally modified trees that predate contact with Europeans are protected under the *Heritage Conservation Act*.

Staff advised me that the licensee regularly meets with First Nations to discuss proposed harvesting operations and the potential overlap with archaeological or cultural resources. A number of archaeological impact assessments have been conducted in the TFL; however no archaeological sites or evidence have been located that require protection from harvesting. In the Homathko Block, an archaeological overview assessment was completed on selected sites, also with no evidence of archaeological values.

Nonetheless, during harvesting operations, if any evidence of archaeological resources is discovered then the licensee is bound to the requirements in the *Heritage Conservation Act*.

At present, since no known cultural or archaeological values have been found, most likely due to the dynamic nature of the flood plains, I find that archaeological resources have been adequately addressed for this determination.

- *wildlife habitat*

Cottonwood stands are known for their high value as wildlife tree habitat due to their characteristic of decay starting from the treetop downwards, and from rot in the heartwood. These trees are valuable habitat for cavity nesters such as woodpeckers, bats, owls, and Vaux's swift who use old woodpecker nests. Other wildlife species include the bald eagle, grizzly bear and a variety of fish species. Nesting and roosting sites for bald eagle are a major consideration for the three blocks, while in the Homathko and Kingcome Blocks, grizzly bear and their habitat is a primary management concern.

Wildlife habitat requirements were accounted for in the analysis by removing portions of ESA's identified for fish and wildlife from the productive forest land base. Wildlife areas

classified as highly environmentally sensitive (ESA1) were assigned reduction factors that ranged from 90 to 100 percent. Moderately environmentally sensitive areas (ESA2) were reduced by 50 percent. A total of 1019 hectares classified as environmentally sensitive for fish and wildlife were removed from contributing to the timber harvesting land base. BC Forest Service staff have reviewed the ESAs for wildlife and consider them the best available information.

Biodiversity and riparian provisions of the *Forest Practices Code* have been designed to provide for the habitat requirements of most wildlife species. However, some wildlife species "at risk" require special management consideration. The *Identified Wildlife Management Strategy* (IWMS) released in 1999, provides direction for managing critical habitat for identified wildlife species (usually red- or blue-listed). The strategy includes two guidebooks: "*Species and Plant Community Accounts for Identified Wildlife*" and "*Procedures for Establishing Wildlife Habitat Areas*".

Although there are ESAs for fish and wildlife habitat, other identified wildlife species may require further management by the establishment of Wildlife Habitat Areas (WHA). In the Homathko Block these include bull trout, northern goshawk and fisher. In the Lower Fraser Block identified species include: western grebe, American bittern, northern goshawk, Pacific shrew and Keen's long-eared myotis, and in the Kingcome Block only the fisher has been identified as requiring the establishment of WHA.

The IWMS was released in 1999. In TFL 43 as in most areas in the province, the designation of wildlife habitat areas is not complete. I am mindful of the overall provincial maximum of a one-percent allowable impact to timber supply from implementing measures for identified wildlife.

I note that the existing ESAs and riparian areas account for approximately 12 percent of the total TFL land base. It is not clear how much more area in TFL 43 will be required as a result of implementing the IWMS and how any additional area will affect timber supply. For this determination, I have considered the existing land base reductions for wildlife habitat as satisfactory for this determination; however, as discussed below, under "Reasons for Decision", I have considered the potential risk to timber supply from the implementation of the IWMS.

- riparian habitat

The *Forest Practices Code* requires the management of riparian reserve zones (RRZs) that exclude timber harvesting, as well as riparian management zones (RMZs) that restrict timber harvesting in order to protect riparian and aquatic habitat. Stream riparian classes are designated S1 to S6 depending on the presence of fish, and stream channel width and gradient.

Working with the Department of Fisheries and Oceans, and staff from MELP, the licensee developed factors to account for the riparian habitat according to the Code requirements, and reflected them in the timber supply analysis.

TFL 43 is situated on active flood plains with major rivers classified as S1—large rivers—as per the *Riparian Management Area Guidebook*. For large rivers such as the lower Fraser, Homathko and Kingcome rivers the Code requires a 100-metre management

zone; however woody debris does not play an essential role along these types of waterway ecosystems, and therefore a reserve zone is not required adjacent to these riverbanks.

According to the guidebook during the first harvest, 50 percent of the trees are to be retained within 20 metres of the outer perimeter of islands, and along back channels, side channels and sloughs. To reflect this requirement in the analysis for the Lower Fraser Block a 10-metre riparian reserve zone was deducted from the productive forest. For the Homathko and Kingcome Blocks, a 20-metre riparian reserve was reflected in the analysis to approximate the practices required by the Code. As well in the Homathko Block, given the importance of the Cumsack Slough as a major wetland area for wildlife, an additional reserve adjacent to the 10-metre buffer was retained under an ESA classification.

In some cases, environmentally sensitive areas already identified for sensitive fisheries values were found to overlap with riparian reserves or riparian management zones. Only where the ESA's were not adequate, were additional areas identified for land base reductions for riparian habitat requirements. To account for these additional riparian areas, a total of 230 hectares were removed from the productive forest. Staff from Department of Fisheries and Oceans, MELP and BCFS have reviewed this information and concur that it represents current management practice.

In conclusion, I find that this factor has been appropriately accounted for in the timber supply analysis.

- biodiversity

Biological diversity, or biodiversity, is defined as the full range of living organisms, in all their forms and levels of organization, and includes the diversity of genes, species and ecosystems, and the evolutionary and functional processes that link them. Under the Code, biodiversity in a given management unit is assessed and managed at the *stand* and *landscape levels*. For the timber supply analysis, areas within and outside of the timber harvesting land base were assumed to contribute to meeting biodiversity requirements.

- stand-level biodiversity

Stand-level biodiversity is managed by retaining reserves of mature timber or wildlife tree patches (WTP) within cutblocks and in adjacent inoperable and other retained areas to provide structural diversity and wildlife habitat.

For the Lower Fraser Block, WTP requirements are met within the existing natural cottonwood stands. Some small islands located in the Fraser River covered with cottonwood trees are classified as inoperable and reserved from harvesting. These patches of cottonwood trees and existing riparian reserves in other parts of the block are sufficient to meet stand-level biodiversity requirements. Retaining natural cottonwood stands for WTP will ensure that some of the original genetic stock remains in the area.

For the Homathko Block, three-percent or about 50 hectares were excluded from contributing to the timber harvesting land base to account for the WTP requirements.

For the Kingcome Block, the proximity of the operable land base to existing forest structure along stream channels and riparian management zones is sufficient to meet the

stand-level biodiversity requirements, and therefore no further reductions were required. This is substantiated by the licensee's approved forest development plan, which was reviewed by BCFS district staff and MELP staff.

To conclude, the timber supply analysis appropriately accounted for WTP requirements to achieve stand-level biodiversity for the TFL, and I have therefore made no further adjustments to timber supply regarding this factor.

- landscape-level biodiversity

Achieving landscape-level biodiversity objectives involves maintaining forests with a variety of patch sizes, seral stages, and forest stand attributes and structures, across a variety of ecosystems and landscapes. Managing for biodiversity is based in part on the principal that this—together with other provisions in the Forest Practices Code, such as riparian management, maintenance of wildlife trees, and other forest cover objectives as discussed throughout the document—will provide for the habitat needs of most forest and range organisms. A major consideration in managing for biodiversity at the landscape level is leaving sufficient and reasonably located patches of old-growth forests for species dependent on, or strongly associated with old-growth forests.

The delineation and formal designation of "landscape units" is a key component of a sub-regional biodiversity management strategy. A landscape unit is an area established by the district manager, in consultation with MELP and depending on the physical topography can vary in size up to approximately 100 000 hectares. The landscape unit boundary is delineated based on features such as watersheds, heights of land, and administrative boundaries. In addition, from a range of biodiversity emphasis options (BEO) biodiversity management objectives are established for a landscape unit. The *Biodiversity Guidebook* outlines three biodiversity emphasis options—low, intermediate and high.

For TFL 43, the landscape unit boundaries are draft and the associated BEOs have not yet been designated. In similar situations, I note that generally timber supply analyses account for landscape-level biodiversity by applying the 45/45/10 principle (BEO assignment of 45 percent low, 45 percent intermediate and 10 percent high) that has been adopted to reflect landscape level biodiversity as an interim measure until such time as BEOs have been designated. However BCFS and MELP staff have agreed that for this timber supply analysis, the licensee was not required to account for landscape-level biodiversity objectives. The TFL blocks are generally small parts of larger landscape units and many of the landscape-level biodiversity objectives may be met in areas outside the TFL.

The Lower Fraser Block represents approximately one percent of the draft Fraser Valley South Landscape Unit. With the small percentage of the area within the draft landscape unit, the current forest composition and the existing reductions for operability, ESAs, wildlife trees and riparian habitat, I note that requirements for landscape level biodiversity have likely been addressed in this block.

In the Homathko Block, 56 percent of the productive forest is already considered as not contributing to timber supply due to land classifications such as ESAs, riparian reserves, and operability. Ten percent or 360 hectares of the reserved area is composed of trees

older than 120 years, indicating that 10 percent of the total area is already reserved from harvesting and could be available to meet old-seral stage requirements. Other seral stage requirements can also be met from the reserved areas (total area is 1016 hectares) covered with younger trees, accounting for 28 percent of the productive forest in the Homathko Block. Therefore, the higher BEOs requirements will likely be met with the contributions of areas not contributing to timber supply.

For the Kingcome Block, 40 percent of the productive forest does not contribute to timber supply and is available to contribute to other resource values. In the non-contributing land, four percent is covered with stands where the majority of trees are conifers older than 120 years. This area, combined with the areas located within Ecological Reserves 40A and 40B, are of sufficient size to meet landscape-level biodiversity requirements.

Once the landscape units and BEOs have been designated, there will be more certainty regarding landscape-level biodiversity requirements for the TFL. However, in the absence of designated landscape units and BEOs, BCFS and MELP staff have stated that the factors used in the timber supply analysis to account for biodiversity are acceptable. Nonetheless, as the landscape units will be approved in the future, landscape-level biodiversity will be more explicitly accounted for in future timber supply analyses.

In summary, while the landscape units and associated BEOs are still in draft form, the licensee has reviewed the requirements, and in combination with stand-level biodiversity, has submitted that the timber supply analysis reasonably accounts for biodiversity. For this determination I am satisfied that biodiversity has been suitably considered in timber supply projections, and I have made no further adjustments for this factor.

- (vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,**

Twenty-year plan

The twenty-year plan was used to demonstrate the feasibility of the projected harvest rate as reflected in the area-based analysis. This was accomplished by spatially and temporally locating the proposed harvesting blocks for the next 20 years within the TFL. Given the rotation age for the Lower Fraser Block is 26 years, and for the other two blocks it is 33 years, the twenty-year plan represents 77 percent and 61 percent respectively, of a proposed rotation harvesting schedule.

The twenty-year plan successfully demonstrated the licensee's ability to achieve the base case harvest rate during the 20 year time frame of the plan, and I find that the licensee has adequately demonstrated that the proposed harvest rate is reasonable as considered below under "Reasons for Decision".

Small Business Forest Enterprise Program (SBFEP)

To date, the amount of harvesting allocated to SBFEP since 1988, has accumulated an undercut of about 16 263 cubic metres, or 63 hectares. A SBFEP timber sale, issued in 1999 in the Kingcome Block, is projected to reduce the undercut volume to 7355 cubic metres, or 33 hectares. However, the licensee is concerned that the harvesting of the undercut volume has the potential to impact their ability to access wood, depending on where the SBFEP timber is harvested. The concern is primarily due to the increased level

of harvesting and the additional forest cover constraints placed on the licensee by the SBFEP when trying to meet their adjacency requirements.

For the next timber supply analysis, I expect this issue to be more closely examined and, if possible, reflected in the base case.

- (b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,**

Alternative harvest flows

The area-based analysis for the TFL does not include alternative harvest flows based on current forest management practices that would facilitate an evaluation of the implications to the Province of alternative rates of harvest.

However, in addition to the base case forecast, the licensee provided a volume-based analysis (as discussed above, under "Timber Supply Analysis") of the Lower Fraser Block which examined alternative harvest flows and demonstrated that the proposed harvest level is achievable in the long term.

From my examination of the base case harvest level, which indicates a harvest level reduction from the current AAC of approximately 10 percent (4560 cubic metres), I do not expect that this change in harvest flow from TFL 43 will have noticeable implications to the Province or to the local communities.

- (c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities,**

Timber processing facilities

Scott Paper Limited, is a wholly owned subsidiary of Kruger Incorporated, a privately held Canadian company based in Montreal. Scott Paper's Western Manufacturing Division is located in New Westminster. It consists of a groundwood mill, four paper machines and other assorted operations that produce tissue products.

The annual consumption capacity of the pulp mill is 100 000 cubic metres, but it has been operating at a lower consumption rate of about 60 000 cubic metres. Cottonwood and hybrid poplar are the only species utilized by Scott Paper's mill in the production of pulp. The cottonwood pulp is combined with Kraft pulp that is purchased on the open market.

The wood harvested from the TFL provides between 15 to 25 percent of the fibre requirements for the pulp mill. To augment this wood supply, the licensee purchases cottonwood on the open market, including wood harvested by local farmers in the Fraser Valley. Approximately 75 percent of the Kraft pulp is purchased from various pulp mills located on Vancouver Island or from the interior of the province.

- (d) **the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and**

Minister's letters and memorandum

The Minister has expressed the economic and social objectives of the Crown in two documents to the chief forester—a letter dated July 28, 1994, (attached as Appendix 3) and a memorandum dated February 26, 1996, (attached as Appendix 4). I understand both documents to apply to TFL 43. They are consistent with the objectives stated in the Forest Renewal Plan and include forest stewardship, a stable timber supply, and allowance of time for communities to adjust to harvest-level changes in a managed transition from old-growth to second-growth forests, so as to provide for community stability.

The Minister stated in his letter of July 28, 1994, that “any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability.” He placed particular emphasis on the importance of long-term community stability and the continued availability of good forest jobs. To this end, he asked that the chief forester consider the potential impacts on timber supply of commercial thinning and harvesting in previously uneconomical areas. To encourage this, the Minister suggested consideration of partitioned AACs.

I have reviewed opportunities for harvesting in uneconomic areas as previously discussed above (see *physical and economic operability*). The area located between the Jewakwa River and Heakamie River in the Homathko Block is currently considered economically inoperable due to the cost of re-constructing a bridge and effectively removed a large area from the timber harvesting land base. As previously indicated, I encourage the licensee to explore the viability of developing access into this area.

The Minister's February 26, 1996 memorandum addressed the effects of visual resource management on timber supply. It asked that pre-Code constraints applied to timber supply in order to meet VQOs be re-examined when determining AACs in order to ensure they do not unreasonably restrict timber supply. As discussed under *visually sensitive areas*, forest cover requirements for these areas were adequately considered and I have made no further adjustments to the timber supply as projected in the base case.

Local objectives

The Minister's letter of July 28, 1994, states that the chief forester should consider important social and economic objectives that may be derived from the public input in the timber supply review where these are consistent with government's broader objectives.

The licensee took a number of steps to provide opportunities for public review of the statement of management objectives, options, and procedures (SMOOP), draft MP No. 4 and the timber supply analysis by advertising in local newspapers, holding open houses, and making the documents available for public viewing.

The opportunity to review the management objectives was advertised in the local papers located in Chilliwack, Port McNeill, and Powell River, and in the BC Gazette. Public reviews were held January 1 to February 28, 1998, as well from July 25 to September 25, 1999 to provide opportunities for the public and interested stakeholders to review the

SMOOP and draft MP No. 4. In addition, a toll-free number was established and copies of documents were forwarded to government agencies, First Nations, and interest groups. Comments were received from the Ministry of Environment, Lands and Parks regarding wildlife habitat, biodiversity, sedimentation, erosion control and landscape reserves. These concerns were addressed in the SMOOP.

First Nations

In addition to the information considered above in – *cultural heritage resources*, I am aware there are a number of First Nations that have territorial interests that overlap the TFL.

First Nations with traditional territory in the Lower Fraser Block are the Sto:lo Nation, and they have reached stage four in negotiating an Agreement-In-Principle. First Nations with traditional territory in the Homathko Block are from the Homalco Band and they are currently at stage four of an Agreement-In-Principle. In the Kingcome Block, the Musgamagw Tsawataineuk Tribal Council is not involved in the treaty process.

Scott Paper employs First Nations in a number of forest management activities in the TFL.

No specific First Nation's issues affecting timber supply for TFL 43 were raised and no significant impacts have been discovered to date. If the results of further studies become available or the conclusion of the treaty process is reached, this information will be reflected in future determinations to the extent that they may affect timber supply.

- (e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.**

Unsalvaged losses

Unsalvaged losses are timber volumes destroyed or damaged by natural causes such as fire and disease, but not recovered through salvage operations. For the timber supply analysis, no adjustments were made to account for non-recoverable losses because unsalvaged losses are rare due to good accessibility within the blocks. When unsalvaged losses do occur, they are generally small volumes and are accounted for in operational harvesting schedules.

Reasons for decision

In reaching my decision on an AAC for TFL 43, I have considered all of the factors presented above and have reasoned as follows.

The licensee's area-based analysis showed that under current management, the current AAC of 44 460 cubic metres (the expected volume from the allowable harvest area of 128.4 hectares per year), could not be maintained. The base case projected an annual harvest rate of 108.2 hectares (approximately 39 914 cubic metres per year) could be maintained over the next rotation period and best represents current practice.

The base case projection represents a harvest level reduction of approximately 10.2 percent from the current AAC. This reduction is mainly due to the increase in area

required for riparian reserves and inoperable area. An inoperable area, located between the Jewakwa River and Heakamie River in the Homathko Block is considered economically inoperable due to the cost of re-constructing a bridge to access timber currently considered as low value and of low quality. In Management Plan No. 3, the licensee included this area for potential harvesting based on plans for improving access into the area. As I mentioned previously, I am concerned about the deduction of such a large and potentially harvestable area and believe the issue needs further review.

For the reasons stated in "Timber Supply Analysis", and from my review of the factors as detailed above in considerations, for this determination, I accept the area-based analysis and the base case harvest level of 108.2 hectares or about 39 900 cubic metres per year as an adequate basis from which to assess timber supply.

In my AAC determination for TFL 43, I identified the following factor as a possible indication of an overestimation in the projected timber supply.

- *identified wildlife*: impacts from the implementation of the Identified Wildlife Management Strategy were not specifically accounted for in the timber supply analysis. A list of the species that can be found on TFL 43 are detailed in the Identified Wildlife Management Strategy as discussed above, in *wildlife habitat*. Consistent with the current provincial policy on impacts from identified wildlife species, I have considered the timber supply could be overestimated up to one percent.

Although identified wildlife habitat requirements were not explicitly accounted for in the timber supply analysis, I expect it's likely that some of these potential areas will overlap with other resource considerations such as for riparian habitat and wildlife tree patches. I acknowledge government's commitment to limit impacts from identified wildlife to one percent of the provincial timber supply. However, for this determination I have considered this a small risk to timber supply and have not adjusted the harvest level in the short term to account for impacts for identified wildlife.

TFL 43 is the only tree farm licence in the province that is managed exclusively for deciduous species. Currently for all other TFLs in the province, licensees are required to submit a volume-based timber supply analysis, using a computer-based forest estate model. However, for TFL 43 due to the relative small size of the timber harvesting land base and the insufficient growth and yield data available for managed cottonwood and hybrid poplar stands, I find the continued use of an area-based analysis suitable for this determination.

While I have considered the licensee's area-based analysis in detail with all those factors required under Section 8 of the *Forest Act*, a volume-based analysis of the Lower Fraser Block was performed by the licensee using a timber supply computer model called COMPLAN. In reviewing the volume-based analysis, I note that the results are consistent between the two models in the short term. In addition, the twenty-year plan demonstrates that the harvest level as projected by the area-based analysis can be achieved for the next 20 years, which represents almost two thirds of a rotation. This consistency and the results of the twenty-year plan provide me with additional assurance in accepting the results of the area-based analysis.

Given the importance of estimating appropriate minimum harvestable ages, and growth and yield of natural and managed cottonwood and hybrid poplar species, these factors need further refinement. Without improved information it is difficult to predict the appropriate long-term timber supply.

Taking guidance from the social and economic objectives of the Crown, having considered all the environmental factors documented above, and taking into account the risk and uncertainty associated with the information provided, it is my conclusion that a decrease to the harvest level is appropriate and that a harvest level of 39 900 cubic metres per year represents a suitable harvest level for TFL 43 for the next five year period.

Determination

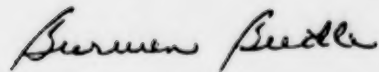
Effective March 1, 2000, the new AAC for TFL 43 will be 39 900 cubic metres, which includes 2803 cubic metres allocated to the Small Business Forest Enterprise Program. This new AAC represents a 10.2-percent or a 4560 cubic metres decrease from the current AAC.

Implementation

This determination comes into effect on March 1, 2000 and will remain in effect until a new AAC is determined, which must take place within five years of the effective date of this determination.

In the period following this determination and leading to the subsequent determination, I strongly encourage the licensee to complete the following:

- continue monitoring the permanent growth & yield sampling plots, which will provide information that is reflective of the growing conditions within the TFL, and install new permanent sample plots in the Kingcome and Homathko Blocks, and
- submit to the chief forester, a schedule that outlines how and when the timber supply within the three blocks will be analyzed using a volume-based analysis.



Bronwen Beedle
Deputy Chief Forester

January 31, 2000

Appendix 1: Section 8 of the Forest Act

Section 8 of the Forest Act, Revised Statutes of British Columbia 1996, reads as follows:

8. Allowable annual cut

8. (1) The chief forester must determine an allowable annual cut at least once every 5 years after the date of the last determination, for
 - (a) the Crown land in each timber supply area, excluding tree farm licence areas, community forest areas and woodlot licence areas, and
 - (b) each tree farm licence area.

- (2) If the minister

- (a) makes an order under section 7 (b) respecting a timber supply area, or
 - (b) amends or enters into a tree farm licence to accomplish the result set out under section 39 (1) (a) to (d),

the chief forester must make an allowable annual cut determination under subsection (1) for the timber supply area or tree farm licence area

- (c) within 5 years after the order under paragraph (a) or the amendment or entering into under paragraph (b), and
 - (d) after the determination under paragraph (c), at least once every 5 years after the date of the last determination.

- (3) If

- (a) the allowable annual cut for the tree farm licence area is reduced under section 9 (3), and
 - (b) the chief forester subsequently determines, under subsection (1) of this section, the allowable annual cut for the tree farm licence area,

the chief forester must determine an allowable annual cut at least once every 5 years from the date the allowable annual cut under subsection (1) of this section is effective under section 9 (6).

- (4) If the allowable annual cut for the tree farm licence area is reduced under section 9 (3), the chief forester is not required to make the determination under subsection (1) of this section at the times set out in subsection (1) or (2) (c) or (d), but must make that determination within one year after the chief forester determines that the holder is in compliance with section 9 (2).
- (5) In determining an allowable annual cut under subsection (1) the chief forester may specify portions of the allowable annual cut attributable to
 - (a) different types of timber and terrain in different parts of Crown land within a timber supply area or tree farm licence area, and
 - (b) different types of timber and terrain in different parts of private land within a tree farm licence area.
- (c) [Repealed 1999-10-1.]
- (6) The regional manager or district manager must determine a volume of timber to be harvested from each woodlot licence area during each year or other period of the term of the woodlot licence, according to the licence.

- (7) The regional manager or the regional manager's designate must determine a volume of timber to be harvested from each community forest agreement area during each year or other period, in accordance with
 - (a) the community forest agreement, and
 - (b) any directions of the chief forester.
- (8) In determining an allowable annual cut under subsection (1) the chief forester, despite anything to the contrary in an agreement listed in section 12, must consider
 - (a) the rate of timber production that may be sustained on the area, taking into account
 - (i) the composition of the forest and its expected rate of growth on the area,
 - (ii) the expected time that it will take the forest to become re-established on the area following denudation,
 - (iii) silviculture treatments to be applied to the area,
 - (iv) the standard of timber utilization and the allowance for decay, waste and breakage expected to be applied with respect to timber harvesting on the area,
 - (v) the constraints on the amount of timber produced from the area that reasonably can be expected by use of the area for purposes other than timber production, and
 - (vi) any other information that, in the chief forester's opinion, relates to the capability of the area to produce timber,
 - (b) the short and long term implications to British Columbia of alternative rates of timber harvesting from the area,
 - (c) the nature, production capabilities and timber requirements of established and proposed timber processing facilities,
 - (d) the economic and social objectives of the government, as expressed by the minister, for the area, for the general region and for British Columbia, and
 - (e) abnormal infestations in and devastations of, and major salvage programs planned for, timber on the area.

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Appendix 2: Section 4 of the Ministry of Forests Act

Section 4 of the *Ministry of Forests Act* (consolidated 1988) reads as follows:

Purposes and functions of ministry

4. The purposes and functions of the ministry are, under the direction of the minister, to
 - (a) encourage maximum productivity of the forest and range resources in British Columbia;
 - (b) manage, protect and conserve the forest and range resources of the government, having regard to the immediate and long term economic and social benefits they may confer on British Columbia;
 - (c) plan the use of the forest and range resources of the government, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the government and with the private sector;
 - (d) encourage a vigorous, efficient and world competitive timber processing industry in British Columbia; and
 - (e) assert the financial interest of the government in its forest and range resources in a systematic and equitable manner.





File: 10100-01

JUL 28 1994

John Cuthbert
Chief Forester
Ministry of Forests
595 Pandora Avenue
Victoria, British Columbia
V8W 3E7

Dear John Cuthbert:

Re: Economic and Social Objectives of the Crown

The *Forest Act* gives you the clear responsibility for determining Allowable Annual Cuts, decisions with far-reaching implications for the province's economy. The *Forest Act* provides that you consider the social and economic objectives of the Crown, as expressed by me, in making these determinations. The purpose of this letter is to provide this information to you.

The social and economic objectives expressed below should be considered in conjunction with environmental considerations as reflected in the Forest Practices Code, which requires recognition and better protection of non-timber values such as biodiversity, wildlife and water quality.

The government's general social and economic objectives for the forest sector are made clear in the goals of the Forest Renewal Program. In relation to the Allowable Annual Cut determinations you must make, I would emphasize the particular importance the government attaches to the continued availability of good forest jobs and to the long-term stability of communities that rely on forests.

Through the Forest Renewal Plan, the government is taking the steps necessary to facilitate the transition to more value-based management in the forest and the forest sector. We feel that adjustment costs should be minimized wherever possible, and to this end, any decreases in allowable cut at this time should be no larger than are necessary to avoid compromising long-run sustainability.

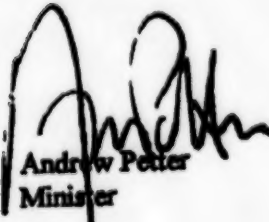
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John Cuthbert
Page 2

In addition to the provincial perspective, you should also consider important local social and economic objectives that may be derived from the public input on the Timber Supply Review discussion papers where these are consistent with the government's broader objectives.

Finally, I would note that improving economic conditions may make it possible to harvest timber which has typically not been used in the past. For example, use of wood from commercial thinnings and previously uneconomic areas may assist in maintaining harvests without violating forest practices constraints. I urge you to consider all available vehicles, such as partitioned cuts, which could provide the forest industry with the opportunity and incentive to demonstrate their ability to utilize such timber resources.

Yours truly,



Andrew Petter
Minister



File: 16290-01

February 26, 1996

To: Larry Pedersen
Chief Forester

From: The Honourable Andrew Petter
Minister of Forests

Re: The Crown's Economic And Social Objectives Regarding Visual Resources

Further to my letter of July 29, 1994, to your predecessor, wherein I expressed the economic and social objectives of the Crown in accordance with Section 7 of the *Forest Act*, I would like to elaborate upon these objectives as they relate to visual resources.

British Columbia's scenic landscapes are a part of its heritage and a resource base underlying much of its tourism industry. They also provide timber supplies that are of significant economic and social importance to forest industry dependent communities.

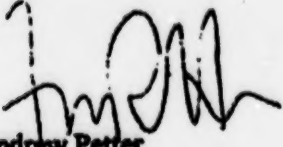
Accordingly, one of the Crown's objectives is to ensure an appropriate balance within timber supply areas and tree farm licence areas between protecting visual resources and minimizing the impact of such protection measures on timber supplies.

As you know, I have directed that the policy on management of scenic landscapes should be modified in light of the beneficial effects of the Forest Practices Code. In general, the new policy should ensure that establishment and administration of visual quality objectives is less restrictive on timber harvesting. This change is possible because alternative harvesting approaches as well as overall improvement in forest practices will result in reduced detrimental impacts on visually sensitive areas. Also, I anticipate that the Forest Practices Code will lead to a greater public awareness that forest harvesting is being conducted in a responsible, environmentally sound manner, and therefore to a decreased public reaction to its visible effects on the landscape. In relation to the Allowable Annual Cuts determinations that you make, please consider the effects that the new policy will have in each Timber Supply Area and Tree Farm Licence.

Larry Pedersen
Page 2

In keeping with my earlier letter, I would re-emphasize the Crown's objectives to ensure community stability and minimize adjustment costs as the forest sector moves to more value-based management. I believe that the appropriate balance between timber and visual resources will be achieved if decisions are made consistent with the ministry's February 1996 report *The Forest Practices Code: Timber Supply Analysis*.

Finally, in my previous letter I had asked that local economic and social objectives be considered. Please ensure that local views on the balance between timber and visual resources are taken into account within the context of government's broader objectives.



Andrew Petter
Minister of Forests